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Notice of Allowability	Application No.	Applicant(s)	
	10/781,455	FERGUSON, KEVIN M.	
	Examiner	Art Unit	
	Cindy D. Khuu	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

- 1. ☐ This communication is responsive to _____.
- 2. ☒ The allowed claim(s) is/are 1.
- 3. ☒ The drawings filed on 02/25/04 are accepted by the Examiner.
- 4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 - 1. ☐ Certified copies of the priority documents have been received.
 - 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

- 5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 - 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
- 7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

Examiner's Amendment

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

This Examiner's Amendment was made to correct for minor informalities and to keep the abstract within the range of 50-150 words.

The application has been amended as follows:

The abstract has exceeded the 150 words in length. Replace the abstract with:

-- A method of measuring frequencies of multiple sinusoidal bursts in a signal uses a time-domain window that includes all the bursts which are then transformed to the frequency-domain by an FFT. The magnitudes of the frequency bins are filtered and smoothed to create a minimum magnitude threshold array. An adaptive threshold is calculated from the minimum magnitude threshold array, maximum magnitudes of the frequency bins and an adjustable constant. The magnitudes are then compared to the adaptive threshold and the number of consecutive frequency bins above the adaptive threshold are counted and, if correct for the given signal, a centroid is determined for each frequency bin. If the number of bursts is not correct, then the adjustable constant is altered and the adaptive threshold recalculated. The centroids are converted to measured frequencies for the multiple sinusoidal bursts. --

In the specification:

Page 6, line 8, replace "Fig. 1" with -- Fig. 2 --.

In Claim 1:

Line 3; replace "an FFT" with -- a Fast Fourier Transform (FFT) --.

Allowable Subject Matter

Claim 1 is allowed.

Pertinent Art Cited

The following US Patents reveal the current state of the art:

Bially et al. (US 2002/0094022) teach a method of measuring frequencies in a signal (**Fig. 4 and 7**) comprising the steps of: performing an FFT on a portion of the signal within an adaptive time-domain window; calculating an adaptive threshold as a function of frequency based on data obtained from the FFT (**Page 3: Paragraph 0031**); and applying the adaptive threshold to the FFT data to identify frequency bins.

However, Bially does not teach at least the applying the adaptive threshold to the FFT data to identify frequency bins having a magnitude greater than the adaptive threshold.

Ortyn et al. (6,778,263) disclose a method of measuring frequencies in a signal comprising the steps of: performing an FFT on a portion of the signal within a window (**Column 18: Lines 6-7**); calculating a threshold as a function of; identify frequency bins; and determining a centroid for each identified frequency bin and converting the centroid to a frequency to provide measured frequencies for the multiple sinusoidal bursts (**Column 19: Lines 12-13**).

However, Ortyn does not teach at least the calculating an adaptive threshold as a function of frequency based on data obtained from the FFT.

Kline-Schoder et al. (6,629,449) disclose a method of measuring frequencies of multiple sinusoidal bursts in a signal (**Column 10: Lines 49-50**) comprising the steps of:

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performing an FFT on a portion of the signal (**Column 13: Lines 31-32**); and calculating an adaptive threshold as a function of frequency based on data obtained from the FFT.

However, Kline-Schoder does not teach at least the performing an FFT on a portion of the signal within an adaptive time-domain window that encompasses the multiple sinusoidal bursts.

Reason for Allowance

The following is an examiner's statement of reasons for allowance:

The pertinent arts lack certain limitations of the claim as discussed above. Further, there is no motivation to combine the references. For example, the motivation to replace the rectangular window technique of Ortyn with the adaptive time domain window of Bially is not formed anywhere in the references.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

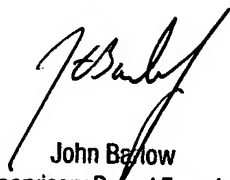
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cindy D. Khoo whose telephone number is (571) 272-8585. The examiner can normally be reached on M-F, 8-6:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ctb 5/31/05


John Barlow
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